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The International POPs Elimination Project

*Fostering Active and Effective Civil Society Participation in
Preparations for Implementation of the Stockholm Convention*

Russian Federation Country Situation Report: Persistent Organic Pollutants: Review of the Situation in Russia English Summary

**Olga Speranskaya, Director, Chemical Safety Program, Eco-Accord
Oxana Tsitser, Russian Federation State Duma Committee on
Ecology Expert**

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About the International POPs Elimination Project

On May 1, 2004, the International POPs Elimination Network (IPEN <http://www.ipen.org>) began a global NGO project called the International POPs Elimination Project (IPEP) in partnership with the United Nations Industrial Development Organization (UNIDO) and the United Nations Environment Program (UNEP). The Global Environment Facility (GEF) provided core funding for the project.

IPEP has three principal objectives:

- Encourage and enable NGOs in 40 developing and transitional countries to engage in activities that provide concrete and immediate contributions to country efforts in preparing for the implementation of the Stockholm Convention;
- Enhance the skills and knowledge of NGOs to help build their capacity as effective stakeholders in the Convention implementation process;
- Help establish regional and national NGO coordination and capacity in all regions of the world in support of longer term efforts to achieve chemical safety.

IPEP will support preparation of reports on country situation, hotspots, policy briefs, and regional activities. Three principal types of activities will be supported by IPEP: participation in the National Implementation Plan, training and awareness workshops, and public information and awareness campaigns.

For more information, please see <http://www.ipen.org>

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Russian Federation Country Situation Report

English Summary

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INTRODUCTION

One of the problems, which have been accompanying the ascent of scientific and technical progress in the last century, is the increasing environmental contamination by alien chemical compounds. Amongst the latter the most dangerous is the group persistent organic pollutants¹ (hereinafter POPs).

The Stockholm Convention on Persistent Organic Pollutants includes twelve POPs, namely:

1. Dichlorodiphenyltrichloroethane (DDT)
2. Aldrin
3. Dieldrin

¹ POPs are toxic, resist breakdown, characterized by bioconcentration and are subject to transboundary transfer by air, water and migrating species, and deposit at large distance away from the source of pollution, accumulating in land and water ecosystems, and in fatty tissues of living organisms. Majority of these substances have a number of common features from the point of view of affecting the environment and human health. They result in reproductive and hormonal dysfunctions and disorders, immune status, cancer, birth defects and deviations in development. They can be found in living organisms at considerable distances from places of their production or application. Special danger is posed to the Arctic ecosystems and aboriginal peoples living in the Arctic, which consume traditional dietary food, contaminated with POPs.

4. Endrin
5. Chlordane
6. Mirex
7. Toxaphene
8. Heptachlor
9. Polychlorinated biphenyls (PCBs)
10. Hexachlorobenzene (HCB)
11. Polychlorinated dibenzo-p-dioxins (PCDD)
12. Polychlorinated dibenzofurans (PCDFs)

SOURCES AND LEVELS OF POLLUTION WITH POPS

DIOXINS AND FURANS

The main sources of emissions of dioxins and furans are groups of the following enterprises:

Production of iron and steel	Plants, producing pig-iron and steel, including foundries, agglomeration and coke
Production of nonferrous metals	Primary and secondary production of copper, aluminum, zinc, lead
Power stations	Burning coal, natural gas, crude oil, wood
Industrial incinerators	Plants using coal, natural gas, crude oil, active silt and biomass used on the spot
Small incinerators	Majority of domestic furnaces and fireplaces using coal, oil and gas
Incineration of waste products	Includes high-temperature incineration of the household solid waste products, dangerous waste products, active silt, medical waste products, waste products of wood; crematoriums
Road transport	Passenger automobiles, buses, lorries, other installations using leaded and unleaded gasoline and diesel fuel
Production of mineral-based materials	Production of cement, lime, glass, bricks, etc.
Other	Asphalt producing enterprises, wood chips processing, chemical industry, casual and deliberate fires (spontaneous and burning dumps, organized solid waste dumps)

In Russia, control over emissions of dioxins into the atmosphere is carried out under special programs. The selected samples are examined in laboratories, accredited to conduct dioxin and PCBs analysis. These laboratories are located in Moscow, Saint Petersburg, Obninsk and Ufa. National methods of measuring the concentration of dioxins and PCBs in atmospheric air and industrial emissions have been developed. These methods are certified by the Gosstandart (State Standard) of the Russian Federation and are included into the State Register of the quantitative chemical analysis methods.

The estimated data of emissions of dioxins/furans in the European part of Russia, g 1-TEQ

Source	1990	1995	1997
Stationary burning of fuel	23.100	14.048	12.278
Burning in the industry	88.060	75.290	96.905
Burning of fuel by the population	68.070	67.926	21.656
Ferrous metallurgy	845.797	555.254	528.625
Nonferrous metallurgy	55.940	51.820	50.978
Production of cement and lime	13.726	6.714	5.034
Mobile sources	39.626	17.946	17.439
Incineration of household waste products	25.058	9.058	5.058
In total	1,134.104	784.318	726.800

Five chemical and analytical centers in Russia most equipped with modern instruments have international certificates of conformity to carry out analyses of toxic substances, including POPS in the environment, other tests and samples. It is necessary to note, that the extremely high cost of analytical works restrains the volume of chemical and analytical measurements. Thus, the cost of the analysis of one sample for dioxins exceeds US\$ 1,000.

Polychlorinated biphenyls (PCBs)

According to the Russian Federation **Fuel and Energy Complex**, 76 enterprises use electric installations with electric PCB-containing equipment. The PCB-containing equipment and oils are not used in 25 regions of Russia.

The greatest number of the PCB-containing electro technical equipment (about 20%) is used in power supply systems of Russia. Approximately the same quantity of PCB-containing transformers and condensers (about 18%) are used at enterprises of machine and instrument building. In addition to this, such equipment is used at enterprises of ferrous and nonferrous metallurgy (about 14%), food-processing industry (meat and fish processing factories, bakeries, flour-grinding enterprises, refrigerated plants, etc.) (about 10%), chemical industry (about 9%), construction industry (about 6%), mechanical plants (about 6%), oil and gas extracting and petroleum-refining industry (about 6%), light industry (cotton-mills, etc.) - about 5%, automobile industry - about 4%, housing and communal services (about 3%) and coal-mining industry (about 1%).

The branch distribution of the PCB-containing equipment, both in operation and in reserve, is as follows:

- Power - 173,378 various capacity condensers in 144 electric installations at 53 electric power plants;
- Oil sector - 2,036 condensers and 20 transformers of various capacities at 14 enterprises
- Coal sector - 401 condenser and 2 transformers of various capacity at 8 enterprises;
- In gas sector no electric equipment with PCB-containing liquids is used.

In total according to a preliminary inventory, PCBs are found in the following sectors:

In the chemical and petrochemical industry - 525 tons and 84% are at three regions: Volga region, Central, Volga -Vyatka, 16% - on Northern, Western - Siberian, Ural, Central Black Soils regions. In regions like Northwest, North Caucasian, East - Siberian, the Kaliningrad area the data is either not present, or PCBs are not used in the chemical and petrochemical industry.

In ferrous metallurgy - 2,999 tons, of which 80% are in two regions: the Urals and Northern, 20% - in Western - Siberian, East - Siberian, North Caucasian, Volga region, Central. In Northwest, Volga - Vyatka to Central Black Soils regions and the Kaliningrad area the data is either not available or PCBs are not used in the ferrous metallurgy.

In nonferrous metallurgy - 89% of PCB in the PCB-containing equipment is in the East - Siberian and 11% - in the Urals and Volgo -Vyatka regions; in other regions, the data is either not present, or PCBs are not used in the nonferrous metallurgy.

In the wood industry, including pulp-and-paper 97% of PCB content is concentrated in two regions (Northwest and East - Siberian), 3% are in the Volgo - Vyatka region, in other regions PCBs either are not used or the data is not present in the wood industry equipment, including pulp and paper industry.

In mechanical engineering - 77% of PCBs are accumulated in the Povolzhie region, 20% concentrated in North Caucasian and the Volgo - Vyatka regions, 3% - in Central Black Soils region, other 7 regions do not have PCBs in the PCB-containing equipment of mechanical engineering, or the data is absent.

Thus, the general picture of PCB pollution at the enterprises of chemical, petrochemical industry, ferrous and nonferrous metallurgy, mining industry, pulp and paper industry, mechanical engineering and some other branches on regional level looks as follows: 62% of PCBs are at two regions (the Povolzhie and Urals regions), data is not available in 2 regions (Far East and the Kaliningrad region), in the remaining 7 regions this figure ranges between 0.2 and 8.3%. A general strategy and two models for dealing with PCB contamination are: discontinue operation of PCB-containing transformers and condensers and define costs necessary for elimination of PCBs. Both are being developed to solve the PCB problem in the Russian Federation.

PESTICIDES

Based on data submitted for the parliamentary hearings in the State Duma of the Russian Federation in 2004 and on materials to consider pesticides and POPs issues at the Security Council of the Russian Federation (2002-2004) at territory of the Russian Federation there is a stock of organochlorine pesticides banned for application, which is about 1,100 tons, including: 151 tons of DDT, 39 tons of HCT (hexachlorocyclogersan), 90 tons of PCK (polychlorokaphen), 28 tons of PCP (polychlorpinen) and 305 tons of hexachlorane.

Storage of pesticides and presence of significant amounts of unusable, banned, obsolete and not identified pesticides, many of which are considered POPs is a serious problem in ensuring ecological safety. The inspections of places of storage of pesticides in facilities, organizations and the enterprises of all patterns of ownership and departmental subordination, have shown that in the majority of regions a major part of the warehouses are built on wooden designs, that are in shabby, emergency conditions. In fact, repairs are not being done.

Some examples of the typical situation that have taken shape developed in many regions of Russia:

- In the Voronezh region, obsolete pesticides are stored in 28 districts in 242 warehouses (about 90 tons of the forbidden preparations and 650 tons are depersonalized);
- In the Tver region, about 500 tons of pesticides is subject to recycling, of which about 70 chlorine-containing and 230 tons of the Shirokov - derivative chlorinated aliphatic acids;
- In the Astrakhan and Perm regions, a lot of work to gather and move the obsolete pesticides to special sites in Samara and Leningrad (“Red Pine Forest”) regions has been carried out, however in the Astrakhan region, 11 more warehouses remain, of which the majority are either destroyed, or are not classified and recorded;
- In Kurgan region, there are about 887 tons of the banned, not identified and obsolete pesticides buried in the Lebyazhyevsk district. It is envisaged to liquidate this burial place and send the pesticides for recycling;
- In Omsk region 327 tons of obsolete pesticides are in various warehouses (from 111 - 48 adapted) and in burial places. A project proposal has been prepared to place these pesticides in the territory of the range on recycling toxic industrial wastes of the first (highest) class of danger;
- In the Republic of Tatarstan 975 tons are placed in more than 800 warehouses, a comprehensive program to ensure safe handling of pesticides and agrochemicals has been prepared;
- In the Kirov region in 2003 a decision was made to concentrate the forbidden pesticides in one warehouse;
- In the Moscow region there are 366 tons, of which 134 tons are placed in 323 warehouses (the majority in unsatisfactory condition, 163 tons are at temporarily adapted premises);
- In the Orenburg region from 760 tons, of which 600 are temporarily buried in ground;
- In the Sakhalin region - 91 ton in the adapted warehouses, 297 tons in temporary burial places;
- In the Tyumen region - 546 tons are kept in dilapidated warehouses and in loose shape.

DAMAGE CAUSED BY POPs

The influence of POPs on humans is very similar to their impact on animals. The newborns receiving POPs with milk of mother or through placenta are especially subjected to their influence.

For today, the consequences of the chemical revolution to humankind are obvious: from plastic products to pesticides - POPs are ubiquitous. Many of these synthetic compounds have helped to increase level of production of foodstuffs, have protected health of people and have made possible existence of conveniences

of modern life. However, a big price has been paid for these successes. Each of our bodies now contains approximately 500 anthropogenic chemical substances - potential poisons that did not exist until the 1920s. Many of them are POPs, including dioxins, PCBs and DDE – a product of DDT decomposition with high resistance.

Thus, long-term production of organochlorine compounds being a basic source of dioxins, has led to a high level of pollution of various components of the environment with dioxins in Chapaevsk. As an example, it is

possible to note that the content of dioxins in breast milk of inhabitants of identical settlements in the USA, resulting from a purposeful environmental protection policy has decreased levels to 16 pkg in toxic equivalent / g of fat and in Germany and Denmark accordingly to 5-15. In contrast, in Chapaevsk, the content of dioxins in breast milk remains as before, on very high level - 43,3 pkg in toxic equivalent / g of fat.

The territory of Russia is subject to the process of accumulation of pollutants from the surrounding natural environment both from its own sources and also from trans-boundary ones, coming from the countries of Europe, Northern Africa, Middle East and Asia. Reduction of emissions of POPs in these countries would lead to a decrease of trans-boundary pollution of the surrounding natural environment in Russia. Besides, the problem of pollution of the surrounding natural environment of the Russian Federation with POPs is of latent character due to the extremely high cost of assessment of concentration of POPs in the natural environment, Russia has no opportunity to monitor such super toxic substances as dioxins (PCDD) and furans (PCDF) and to assess the situation on the country level in general. Therefore, the activities in the Russian Federation to reveal them are of local, selective nature, which, however, have confirmed the presence of dioxins in humans and the environment in dangerous concentrations.

To carry out an assessment and update the data on emissions (dumps) of POPs in the Russian Federation, 10 Regional Registers of Emissions and Transfer of Pollutants (RETP) are created within the framework of international activity (in Saint Petersburg, Arkhangelsk, Astrakhan, Volgograd, Samara, Sverdlovsk, Perm and Chelyabinsk regions, the Krasnodar and Altay territories of the Russian Federation). The analysis of the work of existing registers and distribution of their experience can become the basis for creation of the Federal State Registers of emissions and transfer of pollutants.

REGULATORY FRAMEWORK

The legal field aimed at protecting the population and environment of Russia from the harmful impacts of dangerous chemical substances is reflected in a number of the major regulatory documents and acts:

- The Criminal Code of the Russian Federation (Chapter 26 “Environmental Crimes”),
- The Administrative Code of the Russian Federation;
- The Federal Law “On Protection of the Environment” (Chapter VII)
- The Federal Law “On Environmental expertise”;
- The Federal Law “On Sanitary and Epidemiologic Well-being of the Population”, the Federal Law “On Protection of Rights of the Consumers”;
- The Federal Law “On Quality and Safety of Foodstuffs”;

- The Federal Law “On Safe Handling of Pesticides and Agrochemicals”, the Federal Law “On Industrial and Household Waste”;
- The Federal Law “On Protection of Atmospheric Air”;
- The Water Code of the Russian Federation,
- The Federal Law “On Technical Regulation” and others.

At the same time, the legal field should be amended in the sphere of disposal of dangerous chemical substances and liquidation of consequences of their negative impact on health and environment. Firstly, with the laws “On Status of Zones of Ecological Disaster and Regulation of Economic and Other Activities at their territories” and “On Ensuring Safety of Use of Chemical Substances”. According to the decision of the Government of the Russian Federation dated 12 November 1992 “On State Registration of Potentially Dangerous Chemical and Biological Substances” persistent organic pollutants are registered in the Russian Register of potentially dangerous chemical and biological substances at Ministry of Health of the Russian Federation.

STATUS OF RATIFICATION OF THE STOCKHOLM CONVENTION

The Stockholm Convention has been signed according to the Decision № 320 of the Government of the Russian Federation dated 18 May 2002. Parliamentary hearings on preparation for ratification of the Stockholm Convention on POPs have passed on 11 October 2004 in the State Duma of the Russian Federation. Their purpose were to analyze problems connected to impact of persistent organic pollutants (POPs) on health of people and condition of environment, and to define measures to prepare for ratification of the Stockholm Convention on POPs. All participants of hearings unequivocally supported the necessity of ratification of the Stockholm Convention. Recognizing that POPs are a problem of national nature demanding immediate measures and also recognizing that performance of obligations under the Stockholm Convention will promote implementation of state policy in the field of ensuring the chemical and biological safety of Russia, participants of hearings recommended, in particular, to Federal Assembly of the Russian Federation to ratify the Stockholm Convention on persistent organic pollutants, and to the Government of the Russian Federation to prepare and bring in it to the State Duma for ratification.

Recommendations have been made to authorities of subjects of the Russian Federation and local governments to speed up awareness-raising among the population to prevent adverse impact of persistent organic pollutants on environment and health of the population.

When it becomes a Party to the Convention, Russia can take part in discussion of the list of new substances, which would be subject to activities of this international agreement. Besides, only the Parties to the Convention would receive financial funding from the Global Environmental Facility to implement concrete projects according to the National Implementation Plan of the Convention.

The first Conference of the Parties to the Stockholm Convention will take place May 2-6, 2005 in Uruguay. Russia may become the Party to the Convention if it ratifies, approves or joins by 1 February 2005. Now the Ministry of Natural Resources of the Russian Federation is preparing a draft of the Decision of the Government of the Russian Federation on joining the Stockholm Convention.

RECOMMENDATIONS ON ELIMINATION OF POPS AND PROPOSALS MADE BY NGO

1. It is necessary to duplicate and develop the experiences of NGOs to search for non-authorized stocks of obsolete, unsuitable and forbidden pesticides. The data received by public organizations, should become a component in the nation-wide process of inventory of obsolete and forbidden pesticides.
2. Based on the information received by NGOs, the state structures should make grounded and competent decisions about the non-authorized stocks of obsolete and unsuitable pesticides. Public organizations (NGOs) shall execute supervision of these decisions. Only such independent monitoring will bring concrete results and prevent decisions that will lead to even greater environmental contamination.
3. It is important to support NGO initiatives on revealing of POPs “hotspots”. Such “hotspots” may be as follows:
 - Enterprises, which produce, store and bury pesticides;
 - Places of PCB-containing equipment (condensers, transformers);
 - Dioxin-dangerous productions and objects such as dumps of waste products (both authorized and illegal), incinerators; factories; pulp-and-paper plants; metallurgical enterprises, etc.
4. NGO initiatives to reveal “hotspots” of pollution with POPs should be carried out in close cooperation with local authorities, the state nature protection structures, scientific research institutes. Only such an approach to a problem of environmental contamination with POPs would provide for receiving trustworthy results.
5. It is necessary to organize and carry out an Environmental Impact Assessment (EIA) and public ecological inspections of enterprises, which store and dispose POPs. All technologies on liquidation of POPs should pass the EIA procedure, public ecological examinations and, if necessary, public hearings.
6. It is extremely important to conduct active raising awareness work in all groups of population on issues of ensuring of environmental safety and health protection from impact of POPs. This work should be carried out with participation of NGOs, experts and representatives of the state structures involved in addressing POPs related problems.